2.2 SITE HISTORY AND PREVIOUS WORK

The ESBF property was undeveloped until 1902 when the Kilby Manufacturing Company of Cleveland, Ohio, built the Great Western Sugar (GWS) Factory. The GWS factory was the first sugar beet factory in Weld County. For many years before the GWS factory was built, agriculture had been almost the only industry in surrounding areas and the town of Eaton. The GWS factory was what the town and the surrounding areas needed to develop its agricultural industries' fullest capability. Within 2 years of the GWS factory's construction, the town's population nearly doubled. The potato crop had long been the most important agricultural crop in Weld County, but its wild price fluctuations in the early 1900s made results to farmers very uncertain. This uncertainty was somewhat relieved by the sugar beet crop, which had a fixed price per ton (UOS 2010a).

Floyd Foster, former superintendent of GWS factory from 1960 to 1970, remembers the workings and operations of the GWS factory during the time he worked there. Mr. Foster explained that there were three process water groundwater wells, and water was used during the basic steps in processing sugar beets to beet sugar. The process water was then was pumped out to a recirculating pond and surge pond on the east side on the GWS factory main building to be treated and then recycled. Mr. Foster explained that limestone would be brought to the property, and the lime would be extracted with coke into a coke lime slurry used in the purification process. The lime would then be dried from the slurry and placed in piles on the northeast section of the ESBF property.

Mr. Foster also said that piping insulation for the main GWS factory building was made at the facility. Asbestos sheets were brought to the GWS factory and workers would use a hammer mill to pulverize the asbestos and combine it with water to make a putty mixture, which was then combined with cheesecloth to make insulation for piping in the building. Mr. Foster explained that the hammer mill was torn out in 1968, and at approximately that time, the factory began to use fiberglass insulation on a more regular basis (UOS 2010a).

A Sanborn map search was performed for the ESBF property. Six fire insurance maps were found dating from 1904 to 1946. The fire insurance maps do not show much change on the ESBF property from 1904 to 1946 (UOS 2010a).

The CDPHE Air Pollution and Control Division (APCD) inspected the interior and exterior of the sugar factory main building on the ESBF property in 1992, 1993, 2003, and 2004. A CDPHE APCD inspection report dated June 24, 2004 revealed that the exterior of the main building had penetrations into the building envelope, asbestos (Transite) in small amounts, and evidence of entry into the main building from many access points. The interior of the main building showed many penetrations in the building envelope, more than could be seen from the exterior. Large amounts of severely damaged and deteriorated thermal surfacing insulation were observed throughout the main building. Many areas of the main building were under strong positive pressure, which increases the likelihood that asbestos fibers could be escaping from the building. During the inspection, it was observed that the interior and exterior of the main building had a large amount of graffiti present, and vandalism seems to have occurred (UOS 2010a).

START and EPA conducted a Phase II TBA investigation at the ESBF site in 2010. The Phase II TBA characterized, delineated, and quantified large amounts of ACM and ACS on site, along with identifying and characterizing hazardous waste chemical stored in containers in various areas of the ESBF site (UOS 2010b).

The ESBF property is developed mainly with three brick structures and also includes two dilapidated houses, an unattached garage, and storage shed. The three brick structures include the sugar factory main building, a sugar warehouse, and the office. The sugar factory main building consists of the old boiler house, machine shop, and lime house. The three main brick structures were built in 1902, and construction materials consisted of a fireproof construction with concrete and steel flooring and roofing and brick side walls. The two dilapidated houses are wood framed with a stone brick base and a wood shingle roof. A concrete driveway runs on the north side of the two houses to an unattached garage constructed of the same materials as the two houses and a storage shed constructed of a brick frame with a wood shingle roof. The area of the property surrounding the building structures is mostly unpaved and populated with dense weed growth. There is a lime pile where lime was historically disposed of after being used in the purification process of making beet sugar, and areas scattered with junk metal and trash. The buildings on the property have been extensively vandalized, apparent by the broken windows and graffiti on the buildings (UOS 2010a).

2.3 SITE CHARACTERISTICS

2.3.1 Topographic Characteristics

The ESBF property is located in the South Platte River basin of northern Colorado. The topography is generally flat, and the surrounding land usage is generally irrigated crop and grazing land. The ESBF property is located on the southeast edge of the town of Eaton at an elevation of 4,826 feet above mean sea level. The climate in the Eaton, Colorado area is semiarid. The mean annual precipitation as totaled from the University of Delaware database is 14 inches. The net annual precipitation as calculated from precipitation and evapotranspiration data obtained from the university database is 1.61 inches (University of Delaware 1986). The 2-year, 24-hour rainfall event for the property area is approximately 1.5 inches (Dunne and Leopold 1978).

2.3.2 Geology

The ESBF property lies in the plains of eastern Colorado. Quaternary Eolian deposits and alluvium overly Cretaceous interbedded marine deposits. The Cretaceous Laramie and Fox Hills formations consist of sandstone and shale deltaic marine deposits. The deposits are approximately 300 feet thick in eastern Colorado, and some bedrock outcrops are visible northwest of Eaton (Colorado Geological Survey 1998).

Light brown to gray deposits of loess, windblown clay, silt, and sand blanket much of the eastern Colorado plains with deposits ranging in thickness from 3 to 15 feet (Colton 1978). Sandy alluvium is also present in various thicknesses in the area near streams and creeks, but also as paleochannels under the loess deposits. The alluvium is 20 to 60 feet thick in areas (Topper et al. 2003). Topsoil in the area is generally a silty to sandy loam with moderate water infiltration rates.

No major structural features are described or identified on any geologic maps (Colton 1978).

2.3.3 Hydrogeology

The ESBF property is located in the lower portion of the South Platte River basin. The South Platte River basin aquifer is an unconfined aquifer in the Quaternary alluvial and

upper Cretaceous sandstone deposits. The Cretaceous aquifer is little used as a viable aquifer north of Greeley. The thickness of the alluvium and the alluvial aquifer varies across the basin, but the alluvial aquifer thickness is 20 to 60 feet thick in the Eaton area (Topper et al. 2003). Groundwater flow is generally down-valley to the south-southeast toward the Poudre River valley near Greeley. Groundwater wells in a 1 mile radius of the property are generally 60 to 90 feet deep and report groundwater at 20 to 30 feet below ground surface (bgs).

The Dakota-Cheyenne aquifer is a deeper aquifer below the confining shale layers of the Upper Cretaceous. The depth to the groundwater varies, but well depths that use the aquifer in the Greeley area are reported to be 100 to 200 feet in depth (Topper et al. 2003).

Finer-grained material and poorly sorted sediments can create locally perched or confined aquifers (Topper et al. 2003). Local groundwater surface elevations will be influenced by current surface water elevations and local water usage.

2.3.4 Hydrology

The ESBF property is generally flat with surface water drainage via overland flow expected to be to the south-southeast. Surface water flows into the Eaton Draw (irrigation ditch, east of the property), which flows toward the Poudre River valley (Colton 1998). A threat of flooding does not pertain to the ESBF property (Federal Emergency Management Agency [FEMA] 2009).

3.0 FIELD PROCEDURES

3.1 CONCEPT OF OPERATIONS

3.1.1 Schedule

Field work is scheduled to begin in November 2011. The indoor work will consist of area air sampling and personal air sampling daily during the course of the abatement operation with final clearances being performed as necessary. The outdoor work will consist of personal air sampling and air monitoring daily with confirmation soil sampling as necessary. The scope of work is expected to take up to 5 months to complete.